Why Not Talk about the Harms of Meat Consumption?

Dear Editor:

Recently, Craddock et al. (1) in their publication conducted a systematic review and a meta-analysis to determine the relation between vegetarian and omnivorous dietary patterns and inflammatory and immunological markers. As a conclusion, the results of the studies included in the review suggested lower concentrations of C-reactive protein (CRP) and fibrinogen in people who follow vegetarian eating patterns compared with omnivores. The review was very well performed and was able to demonstrate benefits of the vegetarian diet in relation to the biomarkers studied.

However, even though the authors discussed the findings of Clarke (2) and Arya et al. (3), who associated the increase in serum concentrations of CRP and fibrinogen with food intake of saturated fatty acids, and knowing that increases of such fatty acids are related to animal food consumption according to the American Dietetic Association (4), these facts were not mentioned in their conclusion, justifying the findings only via the increase in the consumption of immunomodulatory phytochemicals, typical of the vegetarian dietary pattern.

The hypothesis based on phytochemical, antioxidants, and nutraceuticals as potential influencers of low concentrations of inflammatory and immunological mediators is well established, but we must consider evidence such as that described by Rocha et al. (5) indicating that inflammatory gene expression is regulated by the type of fat consumed, correlating the consumption of saturated fatty acids with a proinflammatory response that regulates several genes related to inflammatory pathways, such as CD16A (FcγRIIIa), monocyte chemotactic protein-1, matrix metalloproteinase-9, IL-1, IL-6, TNF-α, and p65 in peripheral blood mononuclear cells and adipose tissue.

Consumption of a predominantly vegetable-based diet is associated with a significantly lower risk of cardiovascular disease (6) and other chronic diseases (7). However, it should be recognized that when comparing health outcomes in populations that follow vegetarian and omnivorous dietary patterns, the benefits are not only due to the elements of the first, but can be explained by the risks caused by the second pattern, due to the consumption of products of animal origin, and especially of meat. Alisson-Silva et al. (8) mentioned the need to consider factors related to meat consumption, such as estimates of risk associated with colorectal carcinomas, atherosclerotic cardiovascular disease, and type 2 diabetes. In addition, meat and meat products in general have high amounts of fat, especially saturated fatty acids and cholesterol (9), and high consumption of meat, choline, and L-carnitine increases the formation of trimethylamine *N*-oxide, a potential causative agent in various cardiovascular diseases. Phosphatidylcholine is a major dietary source of choline commonly found in the Western diet, such as in meat, eggs, and other meat products (10). In this way, it is necessary to examine further the traditional theories that explain the risks of diseases associated with meat consumption.

We believe that due to diverse economic and cultural influences on the consumption of meat, researchers should not fail to position themselves clearly as to the risks of chronic consumption of these products every time this is proved by their studies.

Emerson Pinheiro Ferreira
Julio César Acosta-Navarro
Luiza Antoniazzi

From the Health Science Institute, Paulista University (EPF), Sao Paulo, Brazil; and the Lipid Unit, Heart Institute (InCor), University of São Paulo Medic al School, Sao Paulo, Brazil (JCA-N; LA, e-mail: luiza.antoniazzi@incor.usp.br).

Note: The authors of the original article chose not to submit a reply.
Author disclosures: The authors report no conflicts of interest.

References

1. Craddock JC, Neale EP, Peoples GE, Probst YC. Vegetarian-based dietary patterns and their relation with inflammatory and immune biomarkers: a systematic review and meta-analysis. Adv Nutr 2019;10(3):433–51.
2. Clarke R, Shipley M, Armitage J, Collins R, Harris W. Plasma phospholipid fatty acids and CHD in older men: Whitehall study of London civil servants. Br J Nutr 2008;102(2):279–84.
3. Arya S, Isharwal S, Misra A, Pandey RM, Rastogi K, Vikram NK, Dhingra V, Chatterjee A, Sharma R, Luthra K. C-reactive protein and dietary nutrients in urban Asian Indian adolescents and young adults. Nutrition 2006;22(9):865–71.
4. Craig WJ, Mangels AR. Position of the American Dietetic Association: vegetarian diets. J Am Diet Assoc 2009;109(7):1266–82.
5. Rocha DM, Bressan J, Hermsdorff HH. The role of dietary fatty acid intake in inflammatory gene expression: a critical review. São Paulo Med J 2017;135(2):157–68.
6. Acosta-Navarro J, Antoniazzi L, Oki AM, Bonfim MC, Hong V, Bortolotto LA, Acosta-Cardenas P, Sandrim V, Miname MH, Santos Filho RD. Reduced subclinical carotid vascular disease and arterial stiffness in vegetarian men: the CARVOS Study. Int J Cardiol 2017;230:562–6.
7. Acosta-Navarro J, Antoniazzi L, Oki AM, Bonfim MC, Hong V, Bortolotto LA, Acosta-Cardenas P, Sandrim V, Miname MH, Santos Filho RD. Prevalence of metabolic syndrome and Framingham risk score in apparently healthy vegetarian and omnivorous men. Arq Bras Cardiol 2018;110:430–7.
8. Alisson-Silva F, Kawanishi K, Varki A. Human risk of diseases associated with red meat intake: analysis of current theories and proposed role for metabolic incorporation of a non-human sialic acid. Mol Aspects Med 2016;51:16–30.
9. Hygreeva D, Pandey MC, Radhakrishn K. Potential applications of plant based derivatives as fat replacers, antioxidants and antimicrobials in fresh and processed meat product. Meat Sci 2014;98(1):47–57.
10. Nam HS. Gut microbiota and ischemic stroke: the role of trimethylamine N-Oxide. J Stroke 2019;21(2):151–9.

 Adv Nutr 2020;11:736; doi: https://doi.org/10.1093/advances/nmz124.